REMARKS

I. General

Claims 1-20 were pending in the present application, and all of the pending claims are rejected in the present Office Action (mailed January 23, 2007). The present Office Action raises the following issues:

- Claims 11 and 12 are rejected under 35 U.S.C. §112, second paragraph;
- Claims 1-6 and 13-20 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,442,674 to Picard (hereinafter "*Picard*");
- Claims 7-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Picard* in view of an article published by Elena Loli and Fabiana Zama (hereinafter "*Elena*"); and
- Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Picard* in view of *Elena* and further in view of U.S. Patent No. 5,053,958 to Tam (hereinafter "*Tam*").

Applicant respectfully traverses the outstanding claim rejections raised in the current Office Action, and requests reconsideration and withdrawal thereof in light of the amendments and remarks presented herein.

II. Claim Amendments

Claim 11 is canceled without prejudice herein. Claim 12 is amended to change its dependency from canceled claim 11 to claim 10. No new matter is added by these amendments.

III. Rejections Under 35 U.S.C. §112, Second Paragraph over *Picard*

Claims 11 and 12 are rejected under 35 U.S.C. §112, second paragraph. Claim 11 appears to be the root cause of this rejection because of its recitation of "suitably small number of iterations". Without conceding that this rejection is proper, Applicant has canceled claim 11 herein without prejudice to expedite prosecution of this application. Claim 12 is therefore amended to change its dependency from canceled claim 11 to claim 10.

In view of the above, Applicant believes that the 35 U.S.C. §112, second paragraph rejection is now moot, and should therefore be withdrawn.

IV. Rejections Under 35 U.S.C. §102 over *Picard*

Claims 1-6 and 13-20 are rejected under 35 U.S.C. §102(b) as being anticipated by *Picard.* To anticipate a claim under 35 U.S.C. § 102, a single reference must teach every element of the claim, *see* M.P.E.P. § 2131. Applicant respectfully traverses this rejection because *Picard* fails to teach all elements of claims 1-6 and 13-20, as discussed below.

Independent Claim 1

Independent claim 1 recites:

> A method for processing 2D image data for reconstructing 3D image data therefrom, the method comprising:
> receiving a plurality of 2D images acquired at different angles of view; and
> iteratively processing the received 2D images to reconstruct 3D image data therefrom. (Emphasis added).

Picard fails to teach iteratively processing received 2D images to reconstruct 3D image data therefrom. Instead, *Picard* is directed to calibrating an X-ray imaging device, in which *Picard* appears to teach iteratively processing 2D images to automatically determine parameters or calibration coefficients of the X-ray imaging device. While *Picard* mentions that its X-ray imaging device may be a device that captures 2D radiographic images at various different angles of incidence so that the captured 2D radiographic images may then be used to reconstruct 3D information, *Picard* does not address the reconstruction techniques that are employed for performing such reconstruction of 3D information from the captured 2D radiographic images. *Picard* certainly fails to teach iterative processing of the 2D images to reconstruct 3D image data. Instead, *Picard* is primarily focused on calibrating its X-ray imaging device that captures 2D images, and *Picard* appears to propose an iterative technique (using the conjugate gradient) for analysis of 2D images obtained for a calibration object (that comprises beads arranged it) to estimate parameters of the X-ray imaging device in order to automatically calibrate such device.

Picard provides at col. 1, lines 9-11 that its "invention relates to a device and to an automatic method for the geometrical calibration of an X-ray imaging system." "The invention relates essentially to systems using 2D radiation detectors". Col. 1, lines 17-19 of *Picard.* "The term 'geometrical calibration of an imaging system' denotes the operation that leads to precise indirect knowledge of the geometrical parameters that play a role in the production of an image." Col. 2, lines 3-6 of *Picard.* Such calibration may be performed by capturing 2D images of a calibration object (or "calibration phantom") and then manually analyzing such images by a human operator to adjust calibration parameters of the imaging system accordingly, *see* Col. 2, line 3 – col. 3, line 7 of *Picard. Picard* explains that such manual intervention is a "major drawback", particularly when the system is being calibrated for a variety of different viewpoints, as is used in capturing 2D images that are then intended to be processed to reconstruct 3D images, *see* col. 2, line 62 – col. 3, line 7 of *Picard.* Therefore, *Picard* proposes a system in which a calibration object has a known arrangement of beads therein, wherein 2D images of such calibration object are processed to automatically determine appropriate calibrated parameters of the X-ray imaging device, *see* col. 3, lines 23-38; col. 5, lines 16-46; and col. 9, lines 5-49 of *Picard.*

While *Picard* mentions that its iterative, automatic calibration technique for calibrating an X-ray imaging device that captures 2D images may be employed for calibrating such an X-ray imaging device that is used for capturing sufficient number of different viewpoints/angles of a device to enable the 2D images to be processed for 3D image reconstruction, *Picard* does not propose an iterative technique for reconstructing the 3D images from the 2D images; but instead, *Picard's* iterative technique is directed solely to calibrating the X-ray imaging device for capturing the 2D images.

In view of the above, *Picard* fails to teach iteratively processing received 2D images to reconstruct 3D image data therefrom, as recited by claim 1. Therefore, *Picard* fails to anticipate claim 1, and the rejection of record should be withdrawn.

Independent Claim 15

Independent claim 15 recites:

> A system for processing 2D image data for reconstructing 3D image data therefrom, the system comprising:
> means for receiving a plurality of 2D images acquired at different angles of view; and
> means for iteratively processing the received 2D images to reconstruct 3D image data therefrom. (Emphasis added).

Picard fails to teach means for iteratively processing received 2D images to reconstruct 3D image data therefrom. Instead, as discussed above with claim 1, *Picard* is directed to calibrating an X-ray imaging device, in which *Picard* appears to teach iteratively processing 2D images to automatically determine parameters or calibration coefficients of the X-ray imaging device. Therefore, *Picard* fails to anticipate claim 15, and the rejection of record should be withdrawn.

Independent Claim 18

Independent claim 18 recites:

> A system for processing 2D image data for reconstructing 3D image data therefrom, the system comprising:
> an imaging system operable to capture a plurality of 2D images at different angles of view; and
> a reconstruction processor communicatively coupled to the imaging system, said reconstruction processor operable to receive the plurality of captured 2D images and iteratively process the received 2D images to reconstruct 3D image data therefrom in accordance with a conjugate gradient algorithm. (Emphasis added).

Picard fails to teach a reconstruction processor that is operable to receive a plurality of captured 2D images and iteratively process the received 2D images to reconstruct 3D image data therefrom in accordance with a conjugate gradient algorithm. Instead, as discussed above with claim 1, *Picard* is directed to calibrating an X-ray imaging device, in which *Picard* appears to teach iteratively processing 2D images to automatically determine parameters or calibration coefficients of the X-ray imaging device. That is, *Picard* employs a conjugate gradient algorithm for processing 2D images of a calibrating object in order to determine calibration parameters of the X-ray imaging device, not for processing the captured

2D images for reconstructing 3D image data therefrom. Therefore, *Picard* fails to anticipate claim 18, and the rejection of record should be withdrawn.

Dependent Claims

Dependent claims 2-6, 13-14, 16-17, and 19-20 each depend either directly or indirectly from one of independent claims 1, 15, and 18 and, thus, inherit all of the limitations of their respective independent claims. It is respectfully submitted that dependent claims 2-6, 13-14, 16-17, and 19-20 are allowable at least because of their dependence from their respective base claims for the reasons discussed above. Accordingly, Applicant respectfully requests the withdrawal of the rejection of claims 2-6, 13-14, 16-17, and 19-20.

V. Rejections Under 35 U.S.C. §103

Claims 7-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Picard* in view *Elena*; and claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Picard* in view of *Elena* and further in view of *Tam*. As shown above, *Picard* does not teach every feature of independent claim 1. Dependent claims 7-12 each depend either directly or indirectly from independent claim 1 and, thus, inherit all of the limitations of independent claim 1. Applicant respectfully submits that dependent claims 7-12 are allowable based at least on their dependency from claim 1 for the reasons discussed above. Therefore, the rejections of claims 7-12 should likewise be withdrawn.

VI. Conclusion

In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-1078, under Order No. 10020666-1 from which the undersigned is authorized to draw.

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV629204315US, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: April 23, 2007

Signature: Donna Forbit
(Donna Forbit)

Respectfully submitted,

By:
Jody C. Bishop
Attorney/Agent for Applicant(s)
Reg. No. 44,034
Date: April 23, 2007
Telephone No. (214) 855-8007